Welcome

- This is a large file. It will take some time to fully download

Trinity County Weed Management Cooperative

"Weed Co-Op"

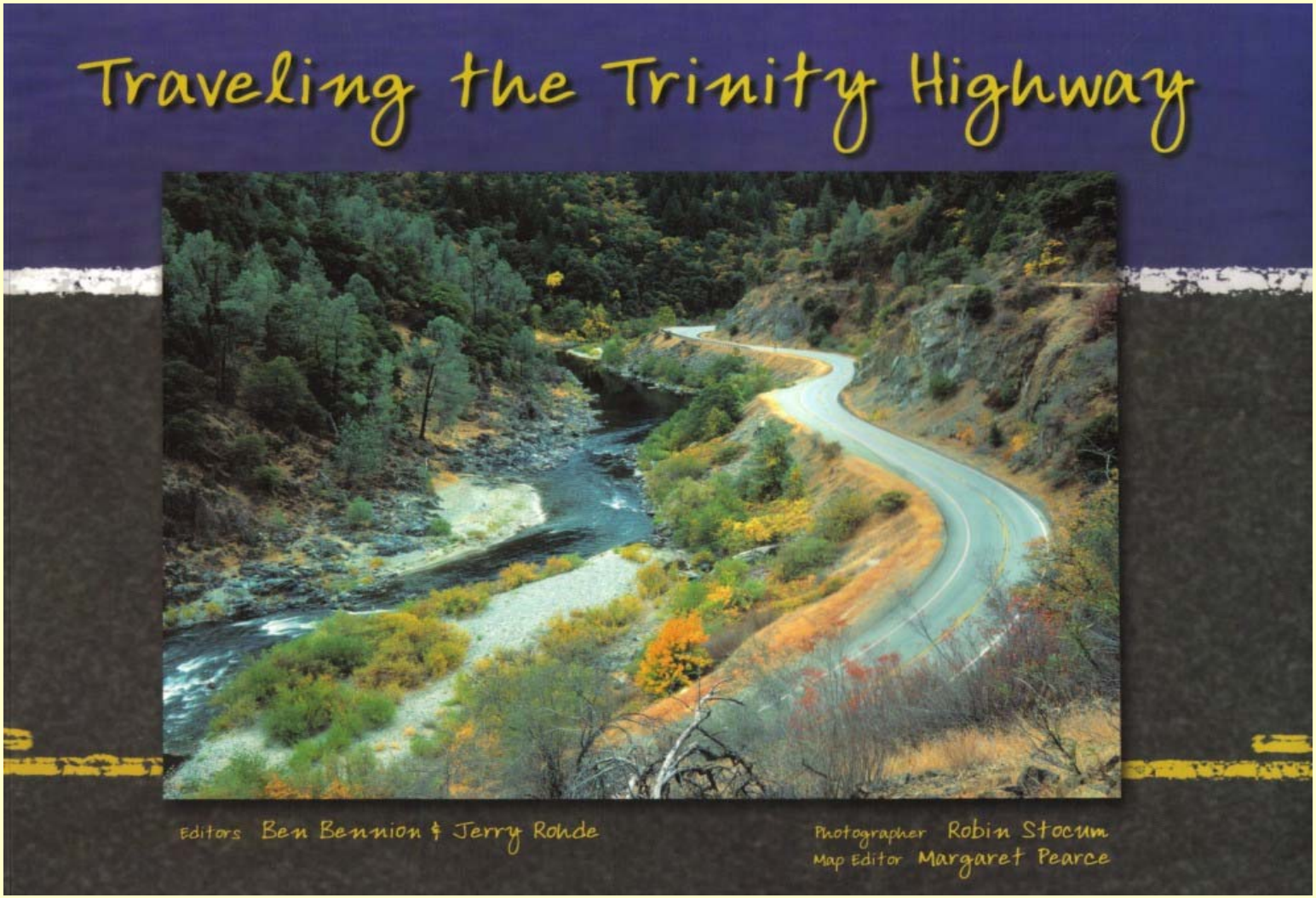
Located in Trinity County, California

Established November 1999

UC Davis Dept of Environmental Horticulture

In general, citizens and landowners in our community underestimate how noxious and invasive weeds negatively impact the environment, economy, and natural resources.

Why Control Weeds in Trinity County?



The Trinity Highway is the area most seen by visitors to Trinity County. This is where we make our first impression. The scenic byway and riparian corridor is also an area vulnerable to invasive species. Over time if left unmanaged invasive species will change the scenic and environmental character of the area. This change may have long term negative economic consequences.

Memorandum of Understanding

- Noxious weeds are displacing native ecosystems plus agricultural and forestry industries.
- Our environment is a valuable resource to be protected from adverse biological impacts and from unsound practices.

MOU Continued

- Collaborate for an effective and environmentally sound effort to educate the public
- Make weed management strategies using scientifically based integrated pest management principals to reduce the spread of noxious weeds.

Trinity County Strategic Plan for the Control of Noxious and Invasive Weeds

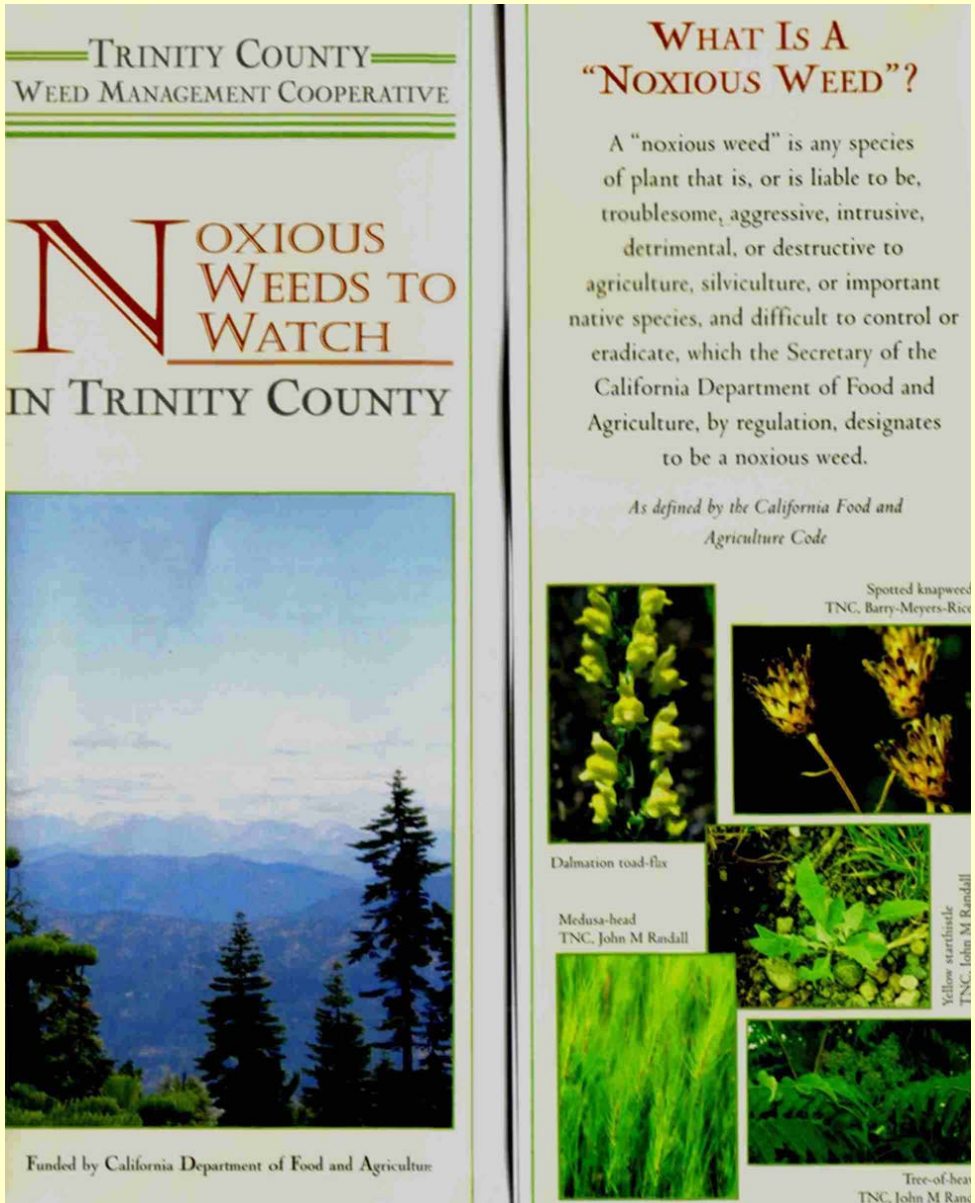
- Education, Awareness, and Outreach
- Prevention: Exclusion and Early Detection
- Survey, Inventory, and Mapping
- Eradication, Control, and Project Monitoring

Education

Weed Co-op Trinity County Fair Display.

Education

Weed Co-Op brochure aids in weed identification



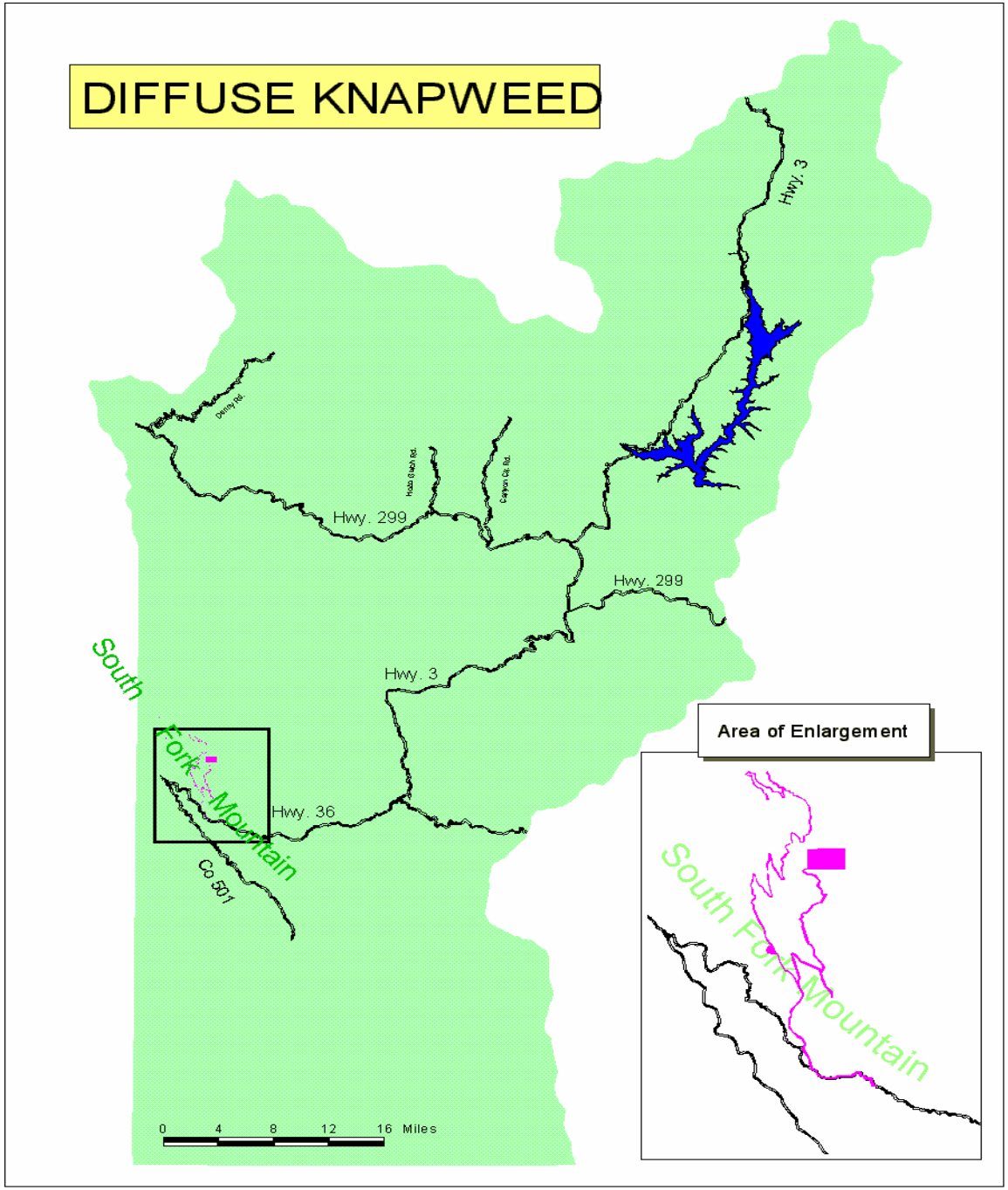
Prevention

- Vehicle washing to prevent spreading invasive weed seeds, photo by Susan Erwin

Survey and Mapping

helps determine a control or eradication strategy

Diffuse knapweed rosette



Trinity County Priority Species

(In alphabetical order)

Dalmatian toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaurea diffusa*
Dyer's woad	*Isatis tinctoria*
Himalayan blackberry	*Rubus discolor*
Hoary Cress/whitetop	*Cardaria chalepensis*
Klamathweed	*Hypericum perforatum*
Perennial peppergrass	*Lepedium latifolium*
Scotch broom	*Cytisus scoparius*
Spotted knapweed	*Centaurea maculosa*
Tree-of-Heaven	*Ailanthus altissima*
Yellow star thistle	*Centaurea solstitialis*

“The Top Ten”

Yellow Star Thistle--*Centaurea solstitialis*

This spiny noxious weed is spreading across California like wildfire.

Dalmatian toadflax- *Linaria dalmatica*

Infestations often form large colonies, displacing desirable vegetation. On infested rangeland, livestock typically avoid grazing plants. Photo by Oregon Invasive Species Council

Diffuse knapweed--*Centaurea diffusa*

Centaurea species produce toxic substances that inhibit native species. They are highly competitive with other plants, often displacing desired vegetation.

Dyer's woad --*Isatis tinctoria*

• Plants are highly competitive and often grow in dense colonies**.** Dyer's woad originated in the Scott Valley of Siskiyou County and moved over the top of Scott Mountain into Trinity County about 20 years ago. Photo by Alfred Brousseau.

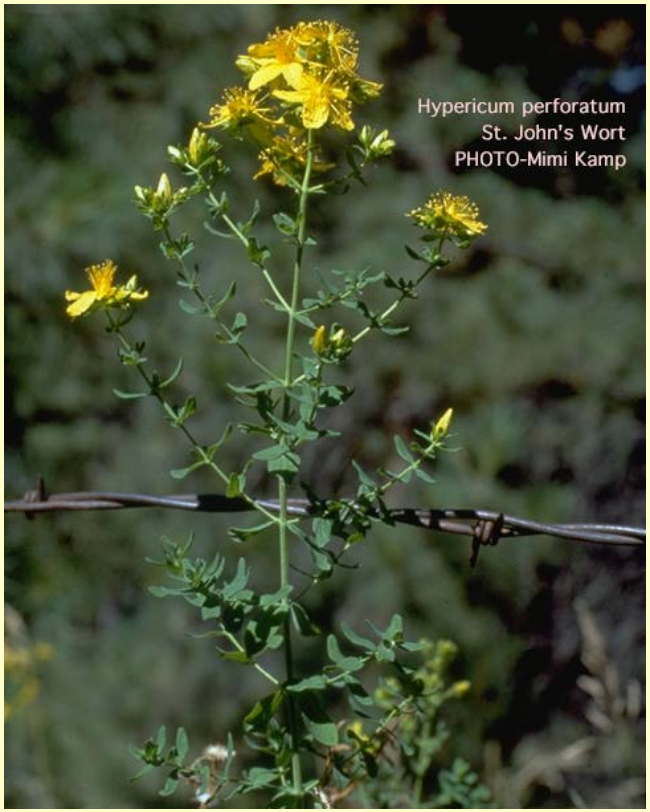
Himalaya Blackberry -- Rubus discolor

Himalaya blackberry thrives along river banks, irrigation canals, roadsides, ditch banks and sometimes is persistent in orchards and vineyards. Photo by John Knight

Hoary Cress/whitetop-- *Cardaria chalepensis*

Noxious perennials to 0.4(0.5) m tall, with creeping horizontal roots that vigorously produce new plants. Photo by Hoary Cress Consortioum

Klamathweed --*Hypericum perforatum*



Foliage is dotted with tiny translucent and black oil glands that contain hypericin, a fluorescent red pigment that is toxic to livestock when consumed in quantity, especially to animals with light-colored skin.. Beetle pictured on right has been used in the coastal region for biological control

Perennial peppergrass--*Lepedium latifolium*

•Plants are highly competitive and typically form dense colonies that displace native vegetation and wildlife.

Scotch Broom --Cytisus scoparius

- The brooms were originally introduced as landscape ornamentals. Brooms have escaped cultivation and have aggressively invaded many natural areas. Photo by CNET Networks Inc.

Spotted Knapweed--Centaurea maculosa

Scene from Idaho

Tree of Heaven--Ailanthus altissima

A rapidly growing deciduous tree with gray bark and large compound leaves. It is a threat because it is a prolific seed producer and grows rapidly. It successfully competes with native vegetation. Photo by Susan Erwin

Integrated Pest Management (IPM)

Section 7270.5 CA Food and Ag Code-Noxious Weed Management

- ecosystem-based control strategy
- focuses on long-term prevention
  - biological controls
  - judicious use of herbicides
  - modified land management
  - cultural practices
- control practices are selected and applied to minimizes the risks to human health, nontargeted organisms, and the environment.

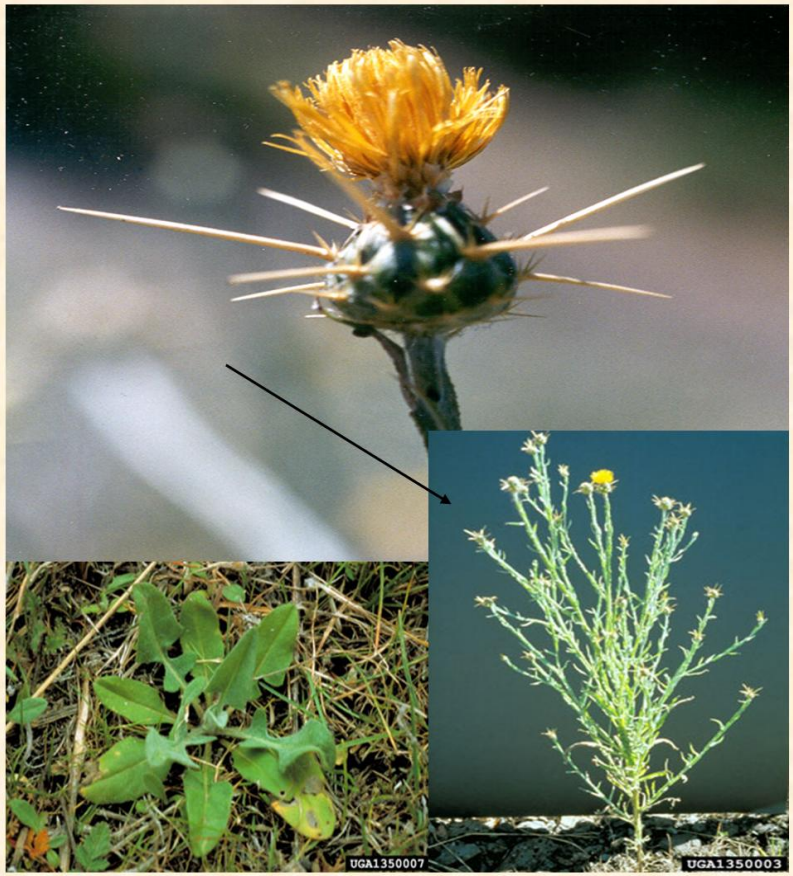
Trinity Weed Co-Op
IPM From Our Strategic Plan

- Biological Control
- Cultural Control
- Mechanical and Physical Control
- Chemical Control

Mechanical-Physical Control Methods

Mowing can be used effectively on some species

Yellow Starthistle

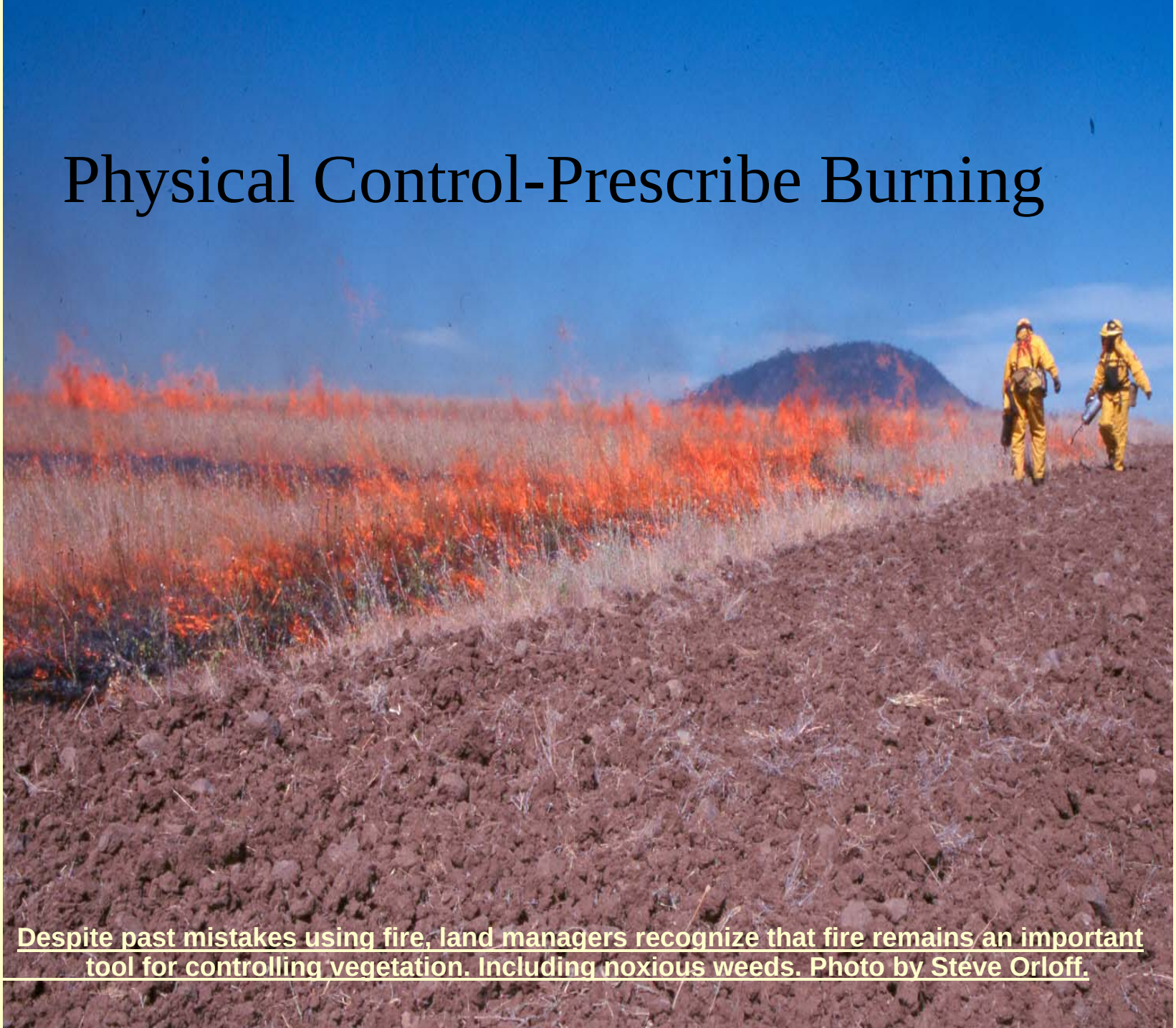


Mow when **2%** of the Population is at **Full Bloom**

The Weed Wrench

Try using the Weed Wrench™ for eliminating Scotch Broom!
The Trinity Resource Conservation District has a Weed Wrench Available for free loan.

Physical Control-Prescribe Burning



Despite past mistakes using fire, land managers recognize that fire remains an important tool for controlling vegetation. Including noxious weeds. Photo by Steve Orloff.

Cultural Control

Cultural vegetation control next to highway 299. Ponderosa Pines are limbed to improve visibility on corners. Trees continue to occupy site discouraging invasive species found on more disturbed sites.

Chemical Controls

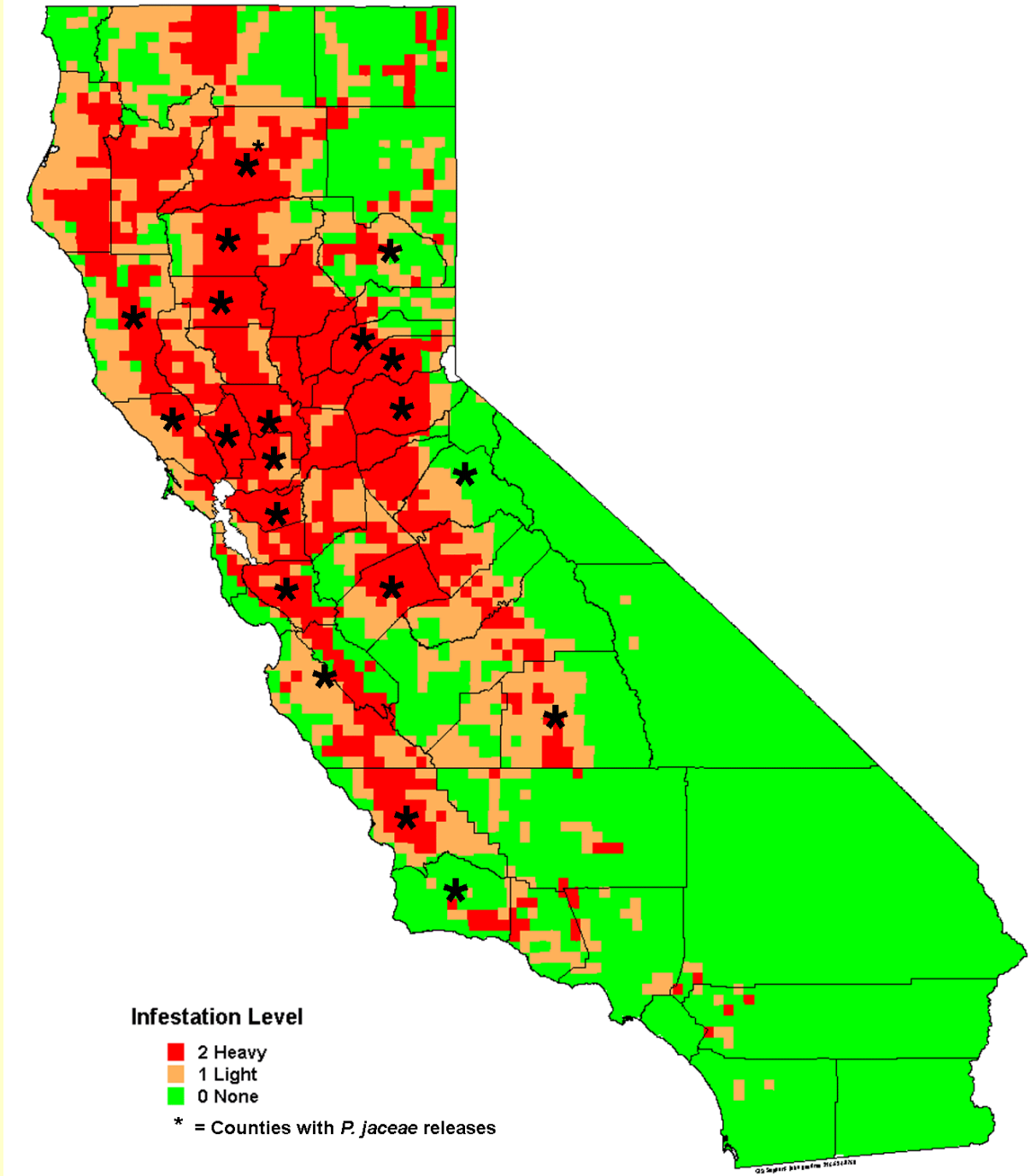
Herbicide with a dye is sprayed into the cut.

A Story of Three Invasive Weeds

- Yellow Starthistle
- Tree of Heaven
- Diffuse Knapweed

How have these three invasive plants been managed in Trinity County?

Yellow Starthistle Biological Control



Dale M. Woods
Biological Control Program
California Department Food & Agriculture

Seedhead Flies Currently Used for Biological Control of Yellow Starthistle

Urophora sirunaseva
YST gall fly
introduced 1984

Chaetorellia australis
Peacock fly
introduced 1988

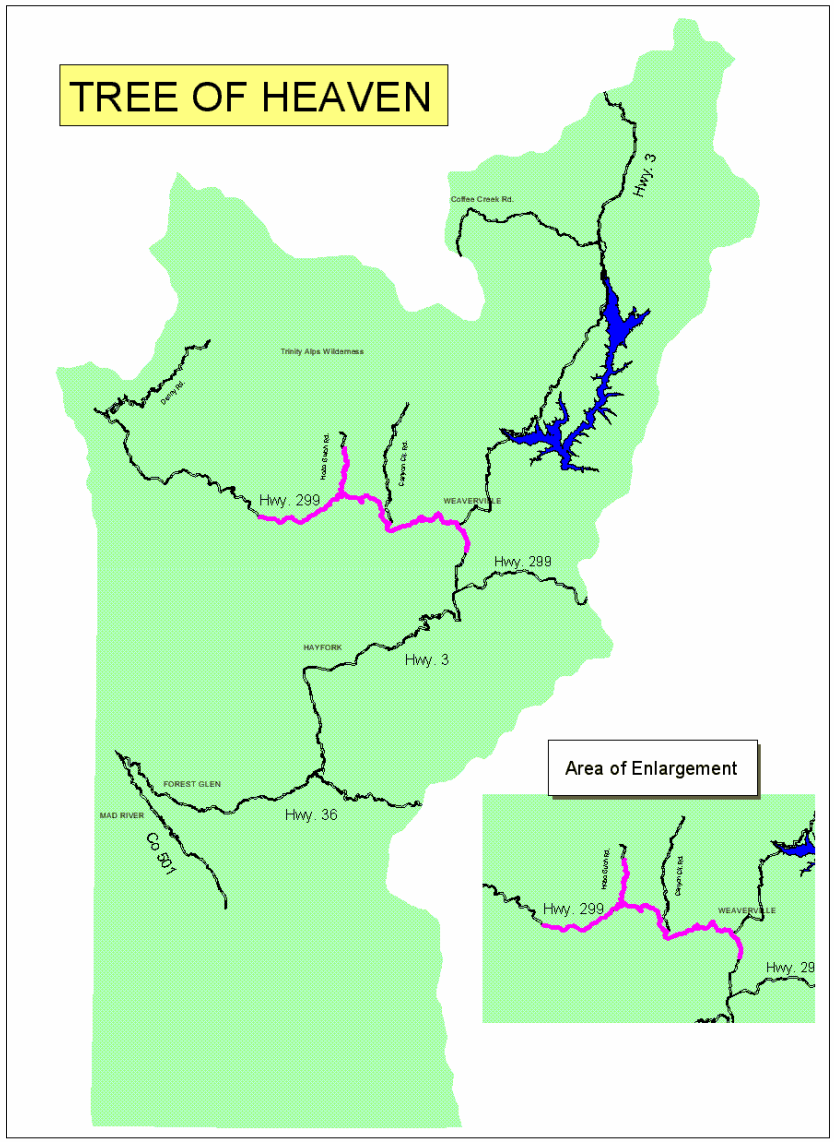
Chaetorellia succinea
False Peacock fly
introduced 1991

Dale M. Woods
Biological Control Program
California Department Food & Agriculture

Virus attack on Starthistle

Dale M. Woods
Biological Control Program
California Department Food & Agriculture

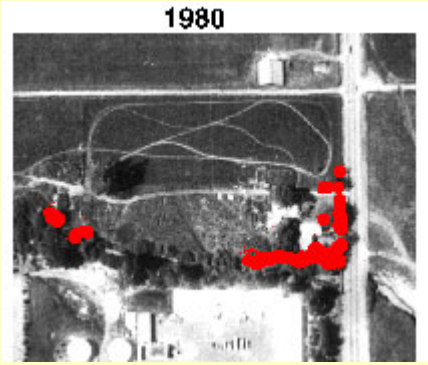
Mapping Tree of Heaven

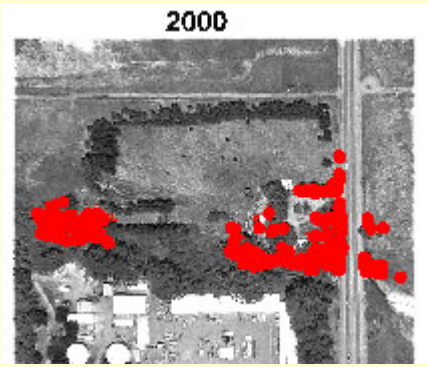


Ailanthus sites mapped in 2004.

- Tree Sites

SPREAD DYNAMICS OF TREE OF HEAVEN

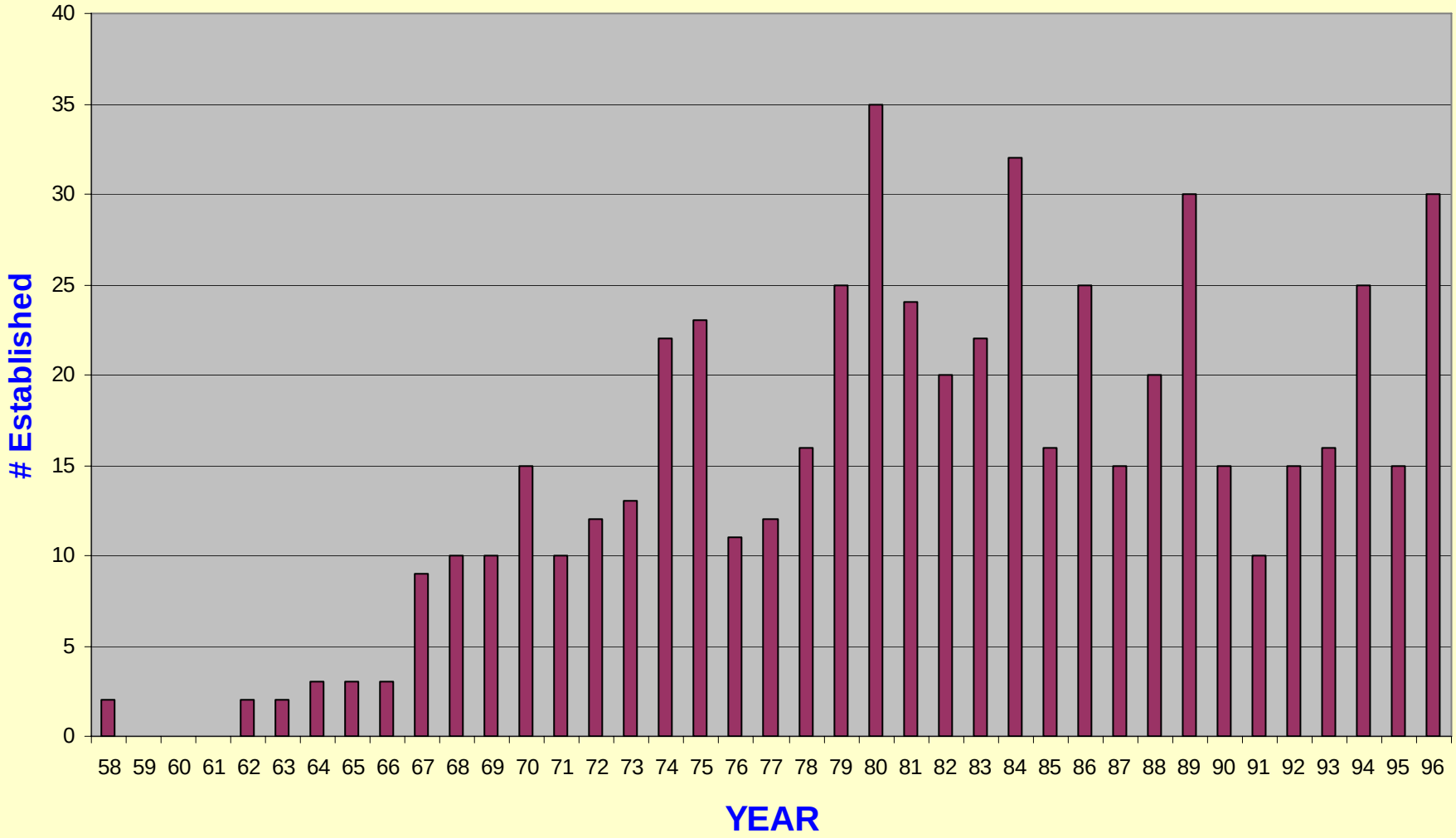




- Tree sites

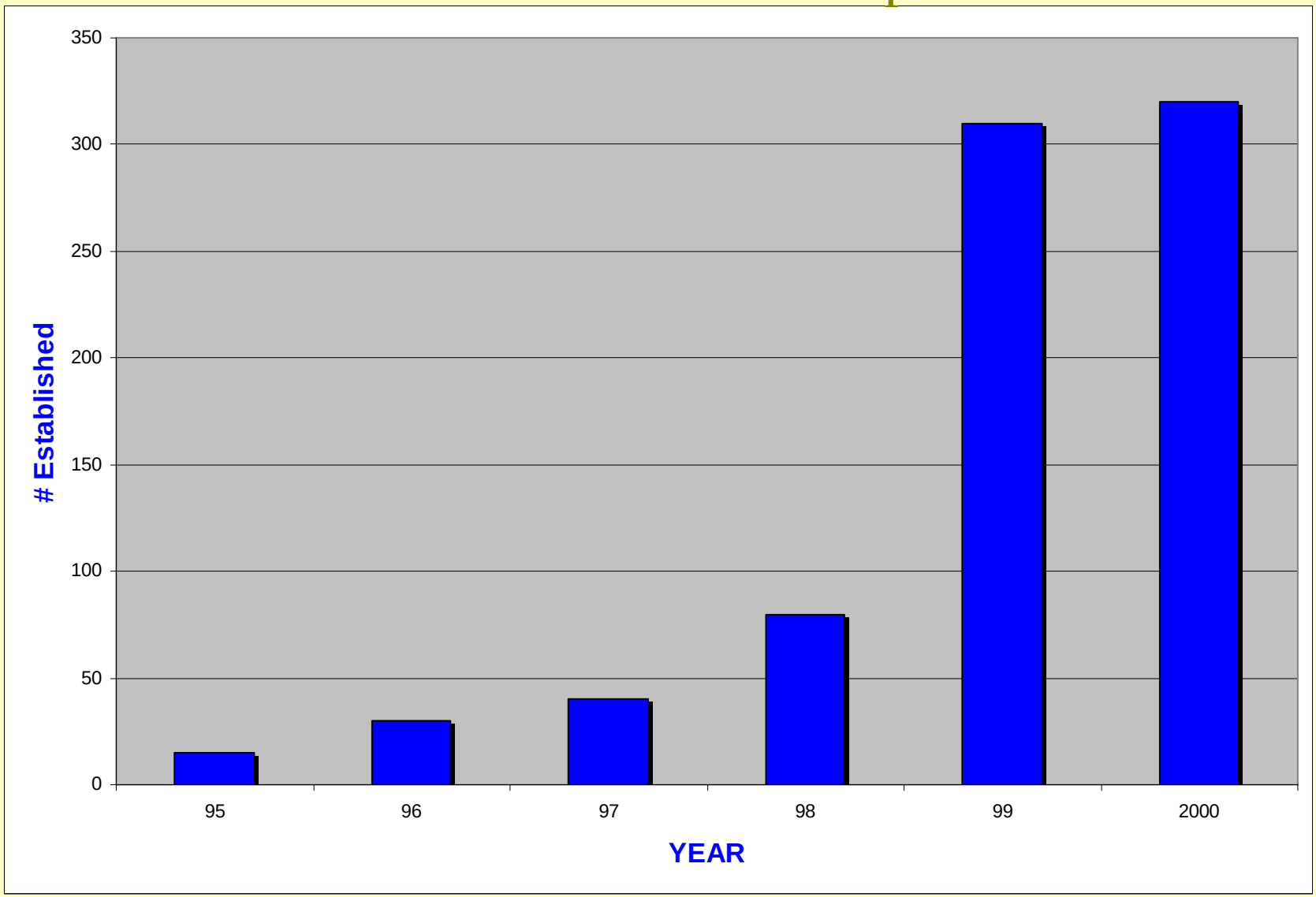
Source: http://www.sonoma.edu/users/s/stokes/StokesResearchsub3.htm

Pattern of Invasion 1958-1996 Copeland Creek-Sonoma County



http://www.sonoma.edu/users/s/stokes/StokesResearchsub3.htm

Pattern Of Invasion 1995-2000 Copeland Creek



High level of new starts in the last 5 years is probably due to a fire burned site in 1998 and apparently stimulated sprouting in 1999. Spread appears to be facilitated by roads

Attempt at physical control of ailanthus. Junction City Area. Photo by John Dobson

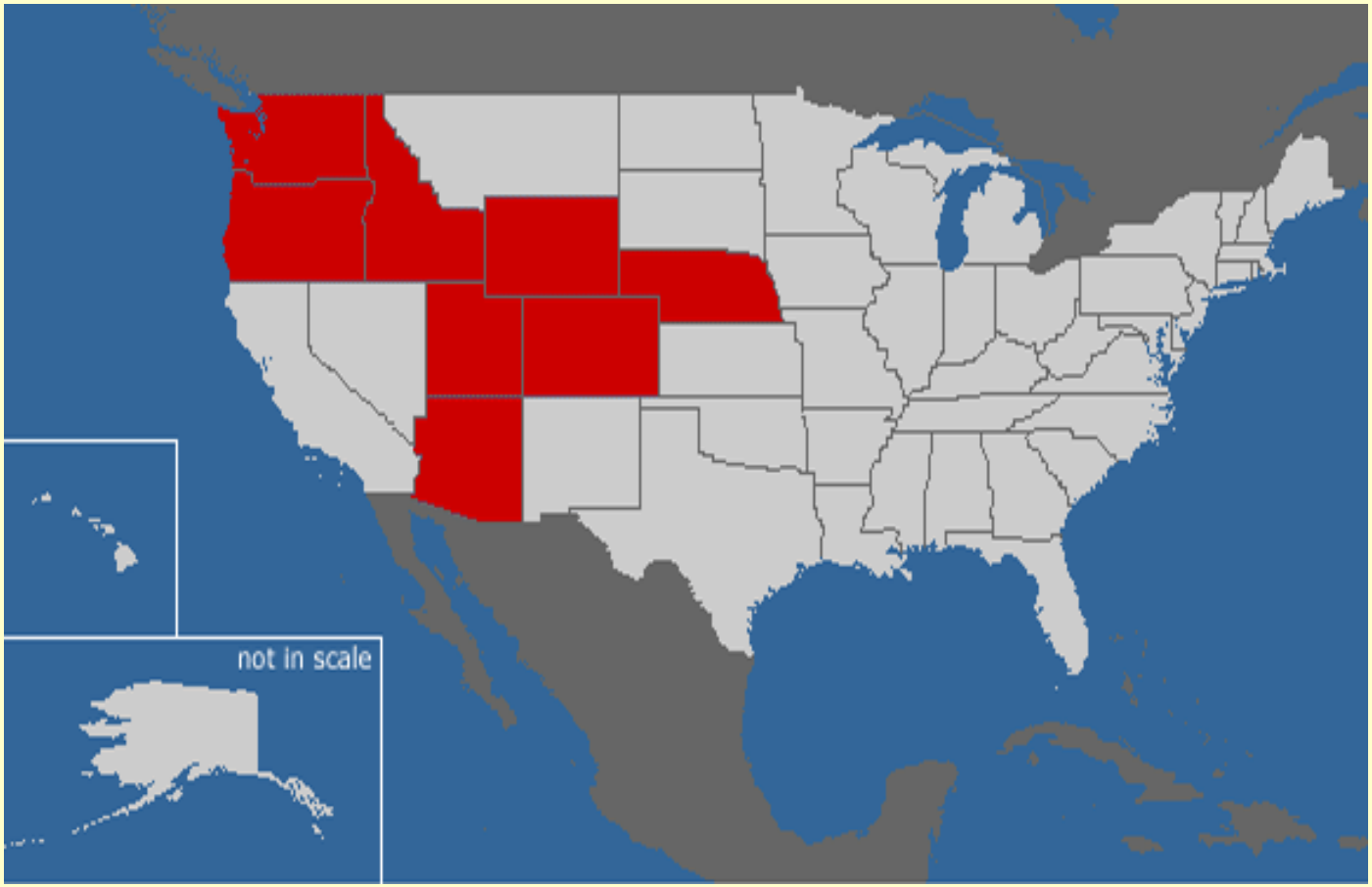
TWO YEARS LATER

Ailanthus has returned in mass.

Diffuse Knapweed…An escape artist?

Mapping helps determine a control or eradication strategy

diffuse knapweed; *Centaurea diffusa*



State(s) where reported invasive*: AZ, CO, ID, NE, OR, UT, WA, WY

*Information from Swearingen, J. 2005. Alien Plant Invaders of Natural Areas. Plant Conservation Alliance, Alien Plant Working Group.
**Map generated by http://douweosinga.com/projects/visitedstates.

IPM Strategy for Diffuse Knapweed

•The best strategy for knapweed control is prevention, when that fails all methods should be considered.

- Cultural
- Mechanical
- Biological
- Chemical

Measuring Cost and Effectiveness for Treatment of Diffuse Knapweed in Trinity County

Acres to Treat	Method	Acres Treated	Cost per Acre	Direct Expenses	Acres Treated
800	Hand Pulling	85 in 3 years	$102	$26,000	85
800	Herbicide	0	$20	$16,000	800

Factors to consider

- Potential Indirect Costs(Health,Litigation)
- NEPA
- Trinity County Policies

This slide compares the results of manual control implemented on South Fork mountain with a hypothetical control program that includes herbicide use.

Source-Trinity Weed Co-Op

Epilogue

In the 21st century, invasive species are a significant threat to the nation's forests and grasslands

- The U.S. spends $13 billion per year to prevent and contain the spread of invasives.
- For all invasives combined, the price tag is $138 billion per year in economic damages and associated control costs.

Source USFS

Points of Disagreement

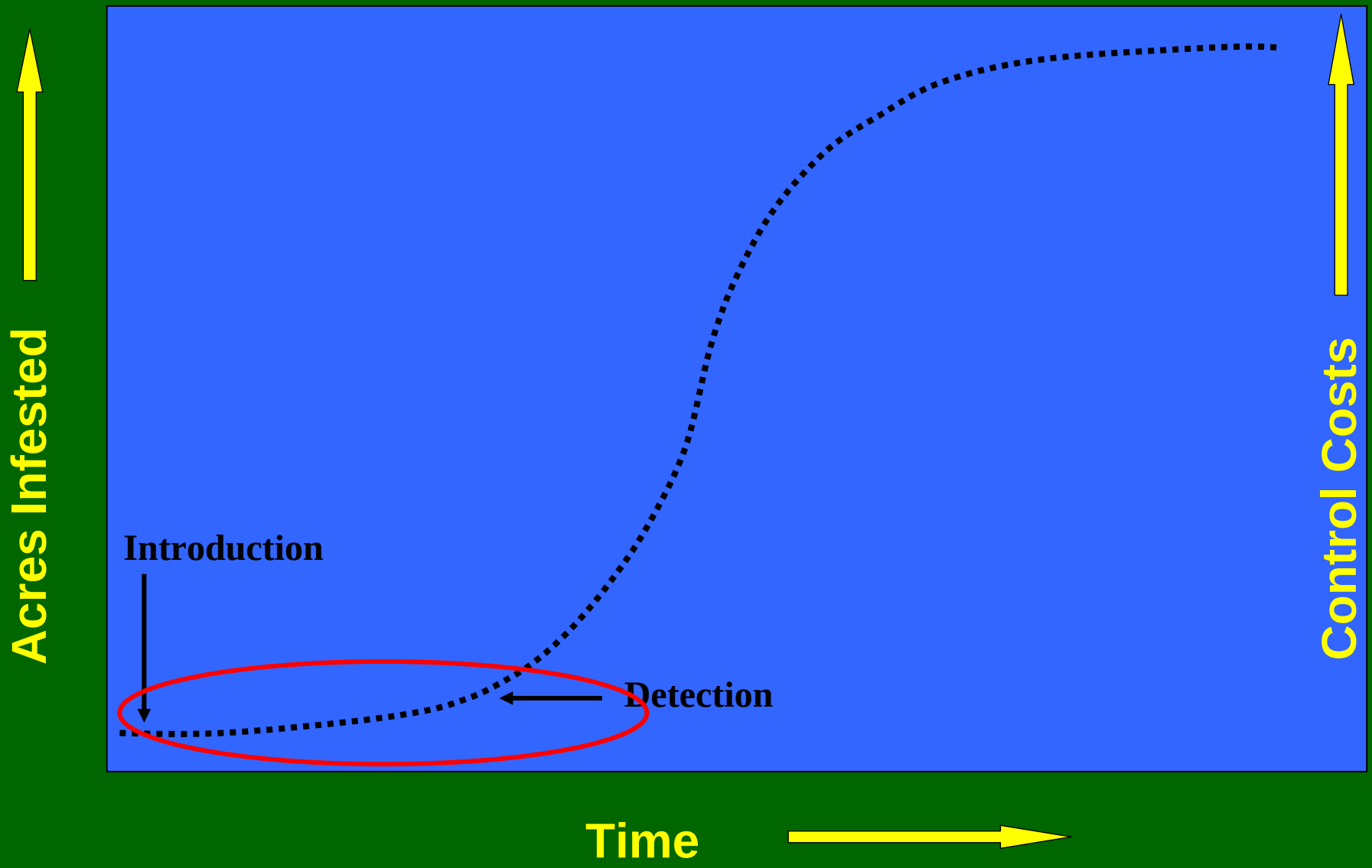
- Forest Herbicides are often perceived by the public to cause harm to the environment and health risks to humans.

- Forest herbicides are also viewed as critical to solving current and future forest health problems related to the invasion of non-native plants.

Strategic Plan vs. County Policy

- Control methods can include chemical, physical, cultural or land management practices
- Make weed management strategies using scientifically based integrated pest management principals to reduce the spread of noxious weeds.
- Herbicides have been officially declared a nuisance by the Board of Supervisors
- Aggressively pursue escaped exotic weed removal (policy 10.1F)
- Prohibit the use of herbicides along State Highways and County roads (policy 10.1.1G)

EARLY DETECTION, early detection, early detection



For More Information

- Trinity County Department of Agriculture, 530-623-1356
- http://www.cal-ipc.org/index.html
- http://tncweeds.ucdavis.edu/index.html
- http://www.safealt.org/